

### **ABSTRACT**

The present invention provides a method and system for improving memory testing efficiency, raising the speed of memory testing, detecting memory failures occurring at the memory operating frequency, and reducing data reported for redundancy repair analysis. The

5 memory testing system includes a first memory tester extracting failed memory location information from the memory at a higher memory operating frequency, an external memory tester receiving failed memory location information at a lower memory tester frequency, and an interface between the first memory tester and the external memory tester. The memory testing method uses data strobes at the memory tester frequency to clock out failed memory location

10 information obtained at the higher memory operating frequency. In addition, the inventive method reports only enough information to the external memory tester for it to determine row, column and single bit failures repairable with the available redundant resources. The present invention further provides a redundant resource allocation system, which uses a bad location list and an associated bad location list to classify failed memory locations according to a

15 predetermined priority sequence, and allocates redundant resources to repair the failed memory locations according to the priority sequence.